



Spectral Gamma-Ray Borehole
Log Data Report

Page 1 of 2

Borehole

41-01-01

Log Event A

Borehole Information

Farm : <u>SX</u>	Tank : <u>SX-101</u>	Site Number : <u>299-W23-132</u>
N-Coord : <u>35,590</u>	W-Coord : <u>75,643</u>	TOC Elevation : <u>662.90</u>
Water Level, ft : <u>134.60</u>	Date Drilled : <u>3/21/1972</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>140</u>	

Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	

Logging Information

Log Run Number : <u>1</u>	Log Run Date : <u>4/18/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>138.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>81.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>4/19/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>81.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>0.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Borehole

41-01-01**Log Event A**

Analysis Information

Analyst : P.D. HenwoodData Processing Reference : Data Analysis Manual Ver. 1Analysis Date : 7/3/1995**Analysis Notes :**

Borehole 41-01-01 was drilled to 100 ft in 1972 and apparently deepened to 140 ft in 1973. There is no report of grout in the borehole or changes in casing thicknesses. The logging depth was 138.5 ft.

The driller's log dated May 1973 indicated "hot" soil from 98 to 100 ft. This interval of possible contamination was not detected by the logging.

Corrections for casing attenuation were made based on a casing thickness of 0.25 inches. No fluid corrections were made to the log data even though it was reported at 134.6 ft. If the correction was applied, the concentrations appeared to be over-estimated.

Cesium 137 was the only man-made radionuclide detected in the borehole. It was found predominantly from the surface to 63 ft with concentrations ranging from approximately 0.2 pCi/g to about 113 pCi/g at 14.5 ft. There could be separate zones of contamination from different sources. The highest concentrations were detected from 0 to 20 ft, above the cascade lines. It is possible the contamination originated at the surface and migrated downward along the outside of the borehole. No other concentrations were indicated above the MDA throughout the borehole except for 4 isolated instances with concentrations less than 0.2 pCi/g and at the bottom of the borehole. Intervals at 28, 41, 52 and 62 ft show contamination of about 1 pCi/g.

Log Plot Notes:

Three log data plots are provided. The Cs-137 concentration is provided in a separate plot to document the concentration and indicate the shape of the Cs-137 distribution. The error of the Cs-137 concentration determination is shown by the error bars, which represents the 95 percent confidence interval. The calculated MDA is shown on this plot as open circles. If the calculated concentration is less than the MDA, it is considered a non-detect and the concentration is not reported.

A plot of naturally occurring potassium, uranium, and thorium (K-40, U-238, and Th-232) is provided to permit correlation of these data with geologic information. On the Th-232 plot, the MDA value is shown as zero at some depth locations. This zero value was a result of an anomaly in the commercial spectrum analysis software which has been corrected by the vendor. Because the MDA calculation at these few points is not significant relative to the intended use of the thorium plot, the data were not reprocessed and corrected. Therefore, these MDA data points on the plot should be ignored.

A combination plot of individual radionuclide concentrations is provided that includes the total gamma rate calculated from the spectral data and the WHC Tank Farms gross gamma ray log data obtained from gross gamma logging systems.